

# An Uncommon Presentation of Coxa Saltans: A Case Report

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## ABSTRACT

Coxa saltans, or “snapping hip,” refers to various conditions that produce a palpable or audible snapping of the hip after movement. We present an uncommon case of coxa saltans in a patient with a snapping proximal hamstring tendon. Findings of dynamic ultrasound evaluation were used to confirm the source of snapping, characterized by a lateral subluxation of the conjoint tendon over the ischial tuberosity. Our patient was treated nonoperatively, and we observed mild improvement of her symptoms. Few cases of similar pathological findings have been described, with varying causes of tendon instability. The results of the current case may help physicians in diagnosing and treating this condition.

**Keywords:** Coxa Saltans, Snapping Hip, Musculoskeletal Ultrasound

## INTRODUCTION

Various studies have documented causes of coxa saltans, also known as “snapping hip.” The most common sources of extraarticular snapping hip include the iliotibial band and iliopsoas tendon, which may be physically sensed by the patient.<sup>1</sup> On physical examination, the iliotibial band and iliopsoas tendon can be palpated over the lateral or anterior hip, respectively.<sup>2</sup> However, a less commonly identified cause of coxa saltans involves dynamic instability of the proximal hamstring tendon at the ischial tuberosity.<sup>1-3</sup> We describe the diagnosis of posterior coxa saltans using magnetic resonance imaging (MRI) and dynamic ultrasound.

## CASE REPORT

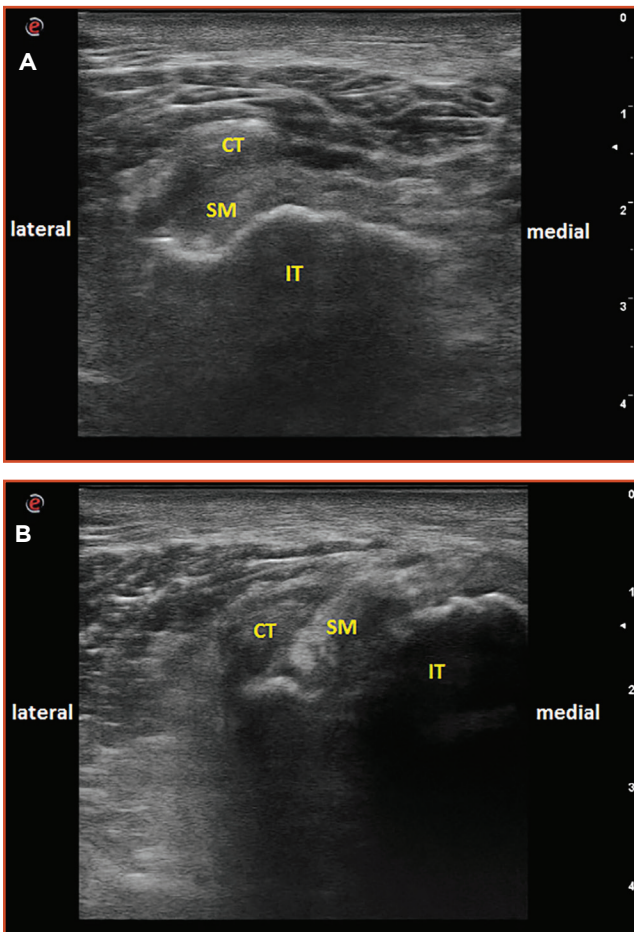
A 59-year-old woman presented to the sports medicine clinic with a snapping sensation around her left buttocks. In the past year, she had noticed considerable snapping during hip flexion, most noticeable while bending over during certain yoga positions. The patient recalled an event before the onset of symptoms, in which she was pushing a vehicle with her left leg while seated inside. She then developed a sharp pain around her left gluteal region. This pain spontaneously resolved, although she did subsequently develop some pain over her left greater trochanter. She was referred to physical therapy, which resulted in minimal relief of symptoms. The patient experienced modest improvement of symptoms after multiple visits to a chiropractor and continued practice of yoga.

Findings of a focused examination of her left lower extremity revealed no gross asymmetry or swelling when compared to the right side. There was moderate tenderness to palpation over the greater trochanter but not the ischial tuberosity. We noted symmetric range of motion and strength in the left and right lower extremities. Provocative maneuvers including FADIR (flex the hip to 90°, adduct, and internally rotate), FABER (flex the hip to 90°, abduct, and externally rotate), scour test, resisted hip abduction, resisted knee flexion, and reverse plank did not result in pain or apprehension. However, active flexion of the left hip resulted in a visible, audible, and palpable “clunk” about the ischial tuberosity.

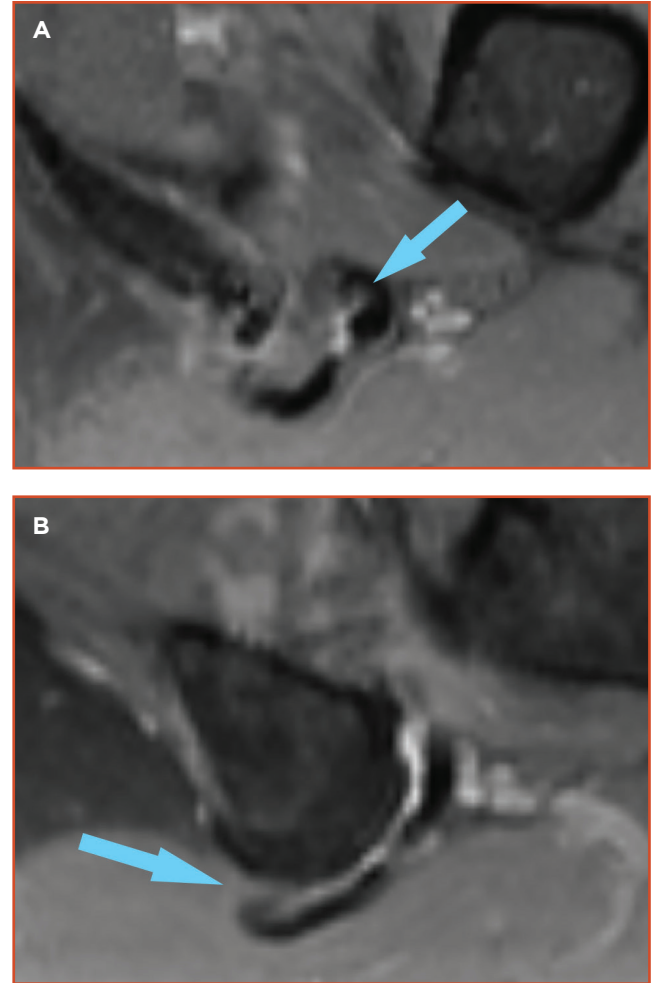
Findings of plain radiographs of the left hip and pelvis revealed mild hip osteoarthritis, without any evidence of a cam-type impingement or pincer deformity (Figure 1). Findings of dynamic ultrasound, obtained with the patient standing and forward flexing at the waist, revealed dynamic instability of the



**Figure 1.** Plain radiograph showing mild osteoarthritis of the left hip.



**Figure 2.** Dynamic ultrasound of the hip. A) Before hip flexion, which shows the conjoint tendon (CT) superficial and medial to the semimembranosus (SM) tendon. The SM tendon is superficial relative to the ischial tuberosity (IT). B) After hip flexion, which shows CT lateral to the SM tendon after subluxation off the IT.



**Figure 3.** Magnetic resonance imaging of the left hip, which shows A) partial tearing of semimembranosus tendon near its insertion at the ischial tuberosity (IT) and B) insertion of the conjoint tendon to the sacrotuberous ligament instead of the IT as typically seen.

proximal hamstring tendon characterized by a lateral subluxation of the conjoint tendon over the ischial tuberosity (Figures 2A and 2B). MRI findings revealed partial tearing of the proximal semimembranosus tendon (Figure 3A) and an abnormal insertion of the conjoint tendon to the sacrotuberous ligament, without attachment to the ischial tuberosity (Figure 3B). Owing to the patient's history and results of physical examination, it was believed that this aberration resulted in the observed lateral subluxation of the conjoint tendon over the ischial tuberosity.

## DISCUSSION

Extraarticular snapping hip most commonly localizes to the anterior or lateral hip, as the result of subluxation of the iliotibial band over the greater trochanter or iliopsoas tendon over the iliopectineal eminence, respectively.<sup>1</sup> We described an uncommon case of coxa saltans of the posterior hip, which was due to proximal hamstring tendon subluxation over the ischial tuberosity. The diagnosis of posterior coxa saltans was confirmed

from findings of dynamic ultrasound; subsequently, this imaging modality may be useful in the evaluation of snapping hip.

The conjoint tendon comprises the proximal biceps femoris and semitendinosus tendon, originating at the inferomedial aspect of the ischial tuberosity.<sup>2,4</sup> Connections of the conjoint tendon to the sacrotuberous ligament have also been described in a subset of individuals.<sup>2</sup> In the current study, the MRI findings revealed an atypical insertion of the conjoint tendon on the sacrotuberous ligament without a clear attachment to the ischial tuberosity, or without evidence of current or previous injury to the conjoint tendon. A similar configuration has been described<sup>2</sup>; however, it occurred after a previous injury that resulted in avulsion of the conjoint tendon from the ischial tuberosity but with residual connection to the sacrotuberous ligament. In the current study, there was no radiographic or clinical evidence of an acute injury involving the conjoint tendon. Furthermore, we found no radiographic evidence of visible avulsion from the ischial tuberosity, making a congenital defect more likely to explain the patient's anatomy. An isolated insertion of the conjoint tendon on the sacrotuberous ligament yields a mechanical pull away from the ischial tuberosity and in turn potentiates lateral subluxation of the tendon over the ischial tuberosity with dynamic maneuvers. The current study is the first to describe lateral subluxation of the conjoint tendon without a history of injury or avulsion.

Other reported cases of snapping proximal hamstring tendon described limited success with an initial period of conservative care, including activity modification, physical therapy, pain medications, and corticosteroid injections. Unfortunately, all patients ultimately underwent surgical intervention.<sup>1-5</sup> Most cases described surgical release of the tendon with tenotomy. However, in a patient with conjoint tendon avulsion described by Spencer-Gardner et al,<sup>2</sup> the authors advocated restoration of the native anatomy with anatomical tendon repair. Because our patient experienced modest yet steady resolution of symptoms with only nonoperative care (eg, chiropractic treatment and yoga), she declined surgical repair. Although the ultimate outcome is not yet known, this case illustrates a rare finding of proximal hamstring subluxation and the clinical utility of dynamic bedside ultrasound in evaluating and accurately diagnosing snapping hip related to tendon instability.

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